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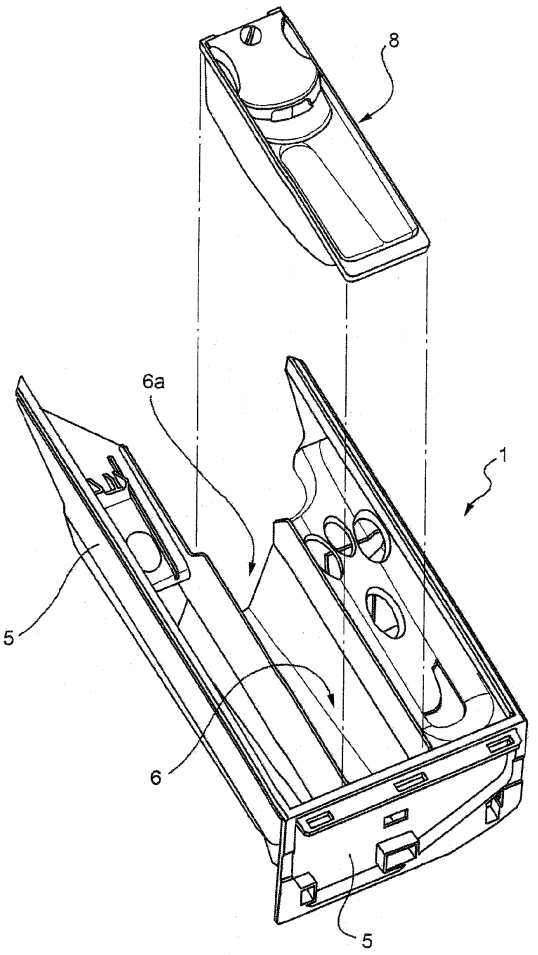
(54) Laundry washing machine dispenser for detergent products or similar

(57) A laundry washing machine dispenser (1) for detergent products or similar, comprising a vessel (5) inserted in a removable manner into a dispenser bay (5a) disposed in the laundry washing machine casing (3); the vessel (5) being divided into a number of independent detergent compartments each of which is fillable with a detergent product, said dispenser (1) also comprises an auxiliary stand-alone liquid detergent container (8) which is capable to store a given amount of liquid detergent product, and is fittable in a removable manner into a first vessel detergent compartment (6); the stand-alone liquid detergent container (8) comprises a basin (9) which is dimensioned for being inserted in a removable manner into the first detergent compartment (6).

FIG. 2



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Description

[0001] The present invention relates to a laundry washing machine dispenser for detergent products or similar.

[0002] More specifically, the present invention relates to a detergent dispenser of the type comprising a vessel which is inserted in drawer-like manner into a dispenser bay on the front wall of the machine casing, and is divided into a number of independent compartments manually fillable with detergent products or softeners.

[0003] If the laundry washing machine is designed for use liquid detergent products, each of the vessel compartments fillable with detergent products is defined by a small basin provided, on the bottom, with a syphon assembly through which the liquid detergent product is drawn out of the basin by the water channeled into the latter when the laundry washing machine starts the washing or softening phase of the washing cycle.

[0004] If the laundry washing machine is designed for use powder detergent products, each of the vessel compartments fillable with detergent products is defined by a small basin lacking one of its later walls, so as that the powder detergent product stored in the basin comes out of the latter through said opening together with the water channeled into the basin when the laundry washing machine starts the washing or softening phase of the washing cycle.

[0005] As is known, filling with liquid detergent product a vessel compartment designed for storing powder detergent products has a lot of drawbacks. In fact, immediately after being poured into the vessel compartment, i.e. into the basin, the liquid detergent product flows out of the basin through the missing lateral wall, and reaches the washing tub of the laundry washing machine in advance, thus staining the laundry stored in the washing tub or, at best, greatly reducing its detergent effect due to premature contact with water.

[0006] To eliminate this drawbacks, in the past years the laundry washing machines designed for use powder detergent products were optionally equipped with an additional stand-alone basin properly dimensioned for being inserted in easy-removable manner into a corresponding vessel compartment of the detergent dispenser.

[0007] This further stand-alone basin does not have openings on its lateral walls so as to permanently store a given amount of liquid detergent product, and is provided with a syphon assembly through which the liquid detergent product is discharged into the vessel compartment in which the stand-alone basin is temporarily fitted in, together with the water channeled into the stand-alone basin when the laundry washing machine starts the washing phase of the washing cycle.

[0008] Unfortunately the stand-alone basin does not work properly when it is filled up with high density liquid detergent products. In fact, at the end of the washing cycle the user usually find a lot of residuals of detergent product on the bottom of the stand-alone basin.

[0009] In other words, the water channeled into the stand-alone basin at the beginning of the washing phase does not succeed in dissolving and sweeping into the washing tub all the high density liquid detergent product stored in the stand-alone basin. The washing cycle, therefore, wastes a bit of the liquid detergent product supplied by the user.

[0010] It is an object of the present invention to provide a laundry washing machine detergent dispenser designed to eliminate the aforementioned drawbacks.

[0011] According to the present invention, there is provided a laundry washing machine dispenser for detergent products or similar, as claimed in Claim 1 and preferably, though not necessarily, in any one of the dependent Claims.

[0012] A non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

- Figure 1 shows a view in perspective of a laundry washing machine dispenser for detergent products or similar in accordance with the teachings of the present invention;
- Figures 2 shows a partially exploded view in perspective of the Figure 1 dispenser;
- Figure 3 shows an exploded view in perspective of a component of the Figures 1 and 2 dispenser;
- Figure 4 is a section view of the dispenser component shown in Figure 3.

[0013] With reference to Figures 1 and 2, number 1 indicates as a whole a dispenser for dispensing detergent products or similar specifically designed for being used in a laundry washing machine 2 which is provided with a preferably, though not necessarily, parallelepiped-shaped outer box casing 3 having a front wall 4.

[0014] Detergent dispenser 1 essentially comprises a vessel 5 which is inserted in easy-removable manner into a dispenser bay or seat 5a realized on machine casing 3. More specifically, in the example shown vessel 5 is defined by a drawer-like container 5 inserted in sliding manner into a dispenser bay or seat 5a realized on the front wall 4 of the machine casing 3.

[0015] With reference to Figures 1 and 2, likewise known laundry washing machines, vessel 5 is divided into a number of independent detergent compartments (preferably, though not necessarily, three compartments) each of which is manually fillable with a detergent, softener or similar product.

[0016] At least one of the vessel detergent compartments, hereinafter indicated with number 6, is specifically designed to use powder detergent products, therefore at least the portion of vessel 5 corresponding to detergent compartment 6 is shaped to form a basin 6 having a large thought opening 6a on one of its lateral walls, so as to permit the powder detergent product stored in basin 6 to easily come out of the latter together with the water channeled into basin 6 in known manner when the laundry

washing machine 2 starts the washing or softening phase of the washing cycle.

[0017] More specifically, in the example shown vessel 5 is provided with a front handle 7 which, when vessel 5 is fully inserted into dispenser bay 5a, is substantially coplanar with front wall 4, and basin 6 lacks the lateral wall located on the opposite side of front handle 7, thus forming thought opening 6a.

[0018] With reference to Figures 2, 3 and 4, detergent dispenser 1 also comprises an auxiliary stand-alone liquid detergent container 8 which is capable to store a given amount of liquid detergent product, and is properly dimensioned for being inserted in easy-removable manner into detergent compartment 6.

[0019] Liquid detergent container 8 comprises a stand-alone basin 9 which is dimensioned for being inserted in easy-removable manner into detergent compartment 6, and is provide with a thought opening 9a on one of its lateral walls; and at least one syphon assembly 10 (two in the example shown) which is housed into basin 9 for draining out of basin 9 the liquid detergent product stored in the latter when a give amount of water is channeled into detergent compartment 6, i.e. into basin 9, when laundry washing machine 2 starts the washing phase of the washing cycle.

[0020] More specifically, thought opening 9a on basin 9 is smaller in section than thought opening 6a realized on detergent compartment 6, and liquid detergent container 8 also comprises a movable closing element 11 which is housed into basin 9, next to thought opening 9a, and is manually movable between a closed position in which closing element 11 obstructs opening 9a to prevent liquid detergent leakage from basin 9, and a wide opened position in which closing element 11 does not obstruct thought opening 9a and therefore allows the liquid detergent product to freely pass across opening 9a.

[0021] With reference to Figures 3 and 4, in the example shown closing element 11 consists of a throttle-valve shutter 11 which is fitted in revolving manner into a projecting pin 9b which protrudes from the bottom wall of basin 9 next to thought opening 9a, substantially parallel to the lateral wall in which opening 9a is formed.

[0022] Throttle-valve shutter 11 is designed so as to be manually rotated between a first angular position in which shutter 11 obstructs opening 9a to prevent the liquid leakage from basin 9, and a second angular position in which shutter 11 forms, in opening 9a, two calibrated chinks or gaps dimensioned for allowing the easy outgoing of high density liquids eventually stored in basin 9. High density liquids that have extreme difficulty in getting out of basin 9 through syphon assemblies 10.

[0023] In other words, when placed in the wide opened position, i.e. in the second angular position, closing element 11 allows a quick and complete outgoing of the high density liquid detergent product eventually stored in basin 9 via opening 9a.

[0024] Preferably, though not necessarily, liquid detergent container 8 finally comprises a manually-removable lid 12 which covers part of basin 9, features part of syphon assemblies 10, and is also optionally provided with a rotary selector 13 which is aligned immediately above, and engages into the throttle-valve shutter 11 for allowing an easy, manually-operated rotation of shutter 11 from the outside of basin 9.

[0025] General operation of detergent dispenser 1 is clearly inferable from the above description, with no further explanation required.

[0026] As regards the auxiliary stand-alone liquid detergent container 8, if it is necessary to use a liquid detergent product in detergent dispenser 1, the user places the movable closing element 11 either in the closed position or in the wide opened position according to the low or high density of the liquid detergent product to be used; fits the auxiliary stand-alone liquid detergent container 8, i.e. basin 9, into detergent compartment 6; and finally pours into basin 9 of liquid detergent container 8 the appropriate amount of liquid detergent product.

[0027] In case a high density liquid detergent product is poured into basin 9, the high viscosity of the detergent product impairs the detergent product from immediately getting out of basin 9 via through opening 9a.

[0028] When laundry washing machine 2 starts the washing phase of the washing cycle, a given amount of water is channeled in known way into detergent compartment 6 which houses the liquid detergent container 8. Said given amount of water fills up the basin 9 and gets out of the auxiliary stand-alone liquid detergent container 8 through syphon assemblies 10 diluting and sweeping away the liquid detergent product stored in basin 9.

[0029] If the liquid detergent product is a high density liquid detergent product and through opening 9a on basin 9 is free, the water channeled into basin 9 dilutes the high density liquid detergent product, thus permitting said detergent product to get out from basin 9 via opening 9a. Obviously, a small amount of diluted high density liquid detergent product continues to get out from basin 9 via syphon assemblies 10.

[0030] Clearly, changes may be made to detergent dispenser 1 and auxiliary stand-alone liquid detergent container 8 as described herein without, however, departing from the scope of the present invention.

[0031] For example, closing element 11 may be defined by a sliding shutter slidingly mounted on the lateral wall of basin 9 so as to selectively close the though opening 9a.

Claims

1. A laundry washing machine dispenser (1) for detergent products or similar, the laundry washing machine (2) being provide with a casing (3) and said dispenser (1) comprising a vessel (5) which is inserted in easy-removable manner into a dispenser bay (5a) realized on said casing (3); said vessel (5) being divided into a number of independent detergent com-

partments each of which is fillable with a detergent product; the dispenser (1) also comprising an auxiliary stand-alone liquid detergent container (8) which is capable to store a given amount of liquid detergent product, and is fittable in easy-removable manner into a first (6) of said detergent compartments; said auxiliary stand-alone liquid detergent container (8) comprising a stand-alone basin (9) which is dimensioned for being inserted in easy-removable manner into said first detergent compartment (6), and a syphon assembly (10) for draining out of said stand-alone basin (9) the liquid detergent product stored in the latter; said dispenser (1) being **characterized in that** said stand-alone basin (9) is provide with a thought opening (9a) on one of its lateral walls, and that said auxiliary stand-alone liquid detergent container (8) also comprises a movable closing element (11) which is movable between a closed position in which said closing element (11) obstructs the thought opening (9a) of the stand-alone basin (9) to prevent liquid detergent leakage, and a wide opened position in which said closing element (11) does not obstruct the thought opening (9a) of the stand-alone basin (9) and allows the liquid detergent product to freely pass across said opening (9a).

2. Laundry washing machine dispenser according to Claim 1, **characterized in that** said first detergent compartment (6) is defined by a basin (6) formed on a portion of said vessel (5); said basin (6) having a thought opening (6a) on one of its lateral walls, so as to permit the easy outgoing of the powder detergent product stored in said first detergent compartment (6).

3. Laundry washing machine dispenser according to Claim 1 or 2, **characterized in that** said closing element (11) is a throttle-valve shutter (11) which is fitted in revolving manner into a projecting pin (8b) which protrudes from the bottom wall of said stand-alone basin (9), next to the thought opening (9a) of said stand-alone basin (9).

4. Laundry washing machine dispenser according to Claim 3, **characterized in that** said throttle-valve shutter (11) is designed so as to be manually rotated between a first angular position in which said throttle-valve shutter (11) obstructs the thought opening (9a) of the stand-alone basin (9) to prevent the liquid leakage from said stand-alone basin (9), and a second angular position in which said throttle-valve shutter (11) forms, in the thought opening (9a) of the stand-alone basin (9), two calibrated chinks dimensioned for allowing the easy outgoing of a high density liquid eventually stored in the auxiliary stand-alone liquid detergent container (8).

5. Laundry washing machine dispenser according to Claim 3 or 4, **characterized in that** said auxiliary stand-alone liquid detergent container (8) comprises a manually-removable lid (12) which covers part of said stand-alone basin (9), and which is provided with a rotary selector (13) which engages into the throttle-valve shutter (11) for allowing an easy, manually-operated rotation of said throttle-valve shutter (11) from the outside of the stand-alone basin (9).

6. Laundry washing machine dispenser according to Claim 5, **characterized in that** said manually-removable lid (12) features part of said syphon assembly (10).

7. Laundry washing machine dispenser according to Claim 1 or 2, **characterized in that** said closing element (11) is a sliding shutter slidingly mounted on the lateral wall of the stand-alone basin (9) so as to selectively close the though opening 9a of said stand-alone basin (9).

8. Laundry washing machine dispenser according to any of the preceding Claims, **characterized in that** the dispenser bay (5a) is realized on the front wall (4) of the casing (3) of the laundry washing machine (2), and that said vessel (5) is a drawer-like container (5) which is inserted in sliding manner into said dispenser bay (5a).

FIG. 1

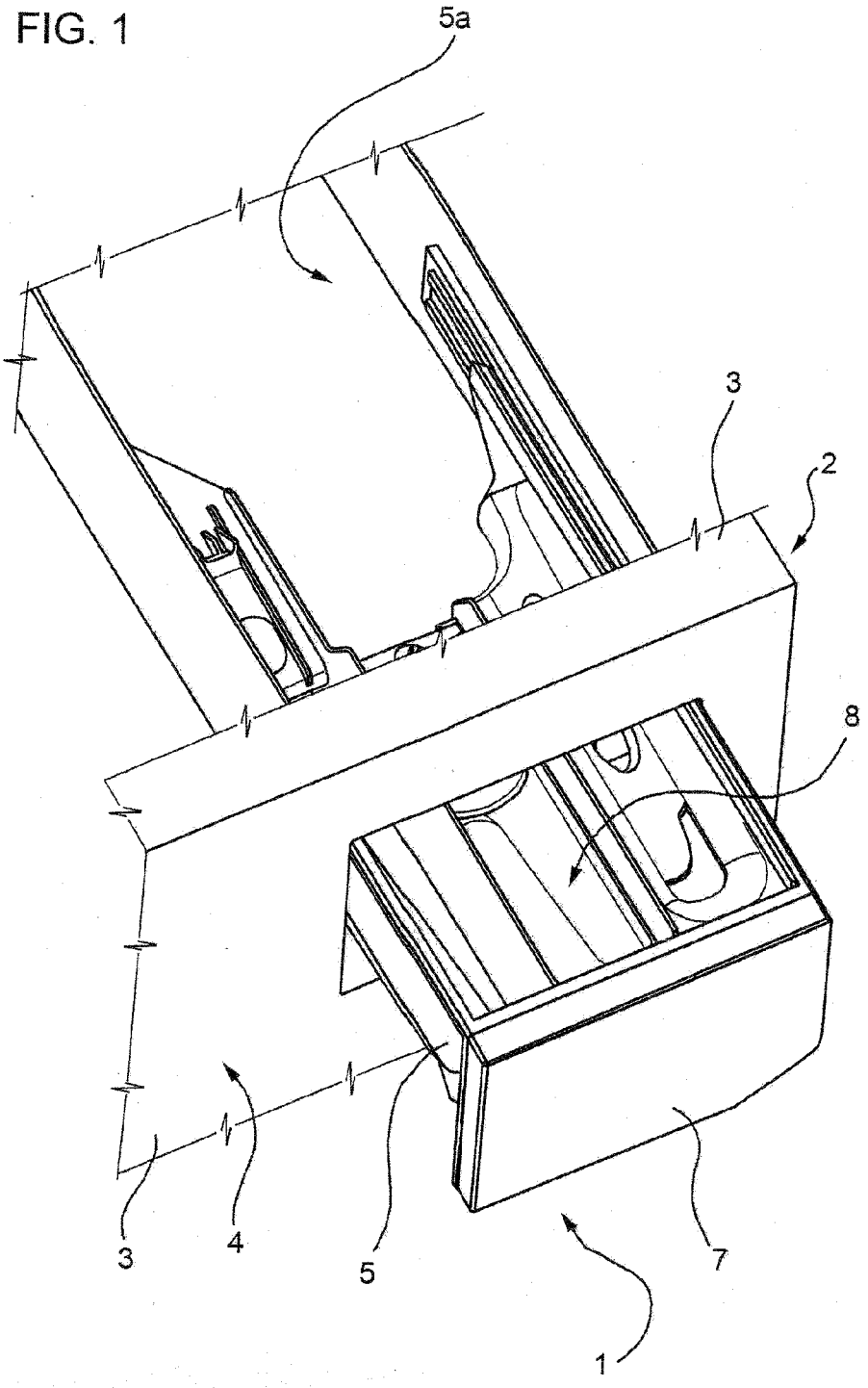


FIG. 2

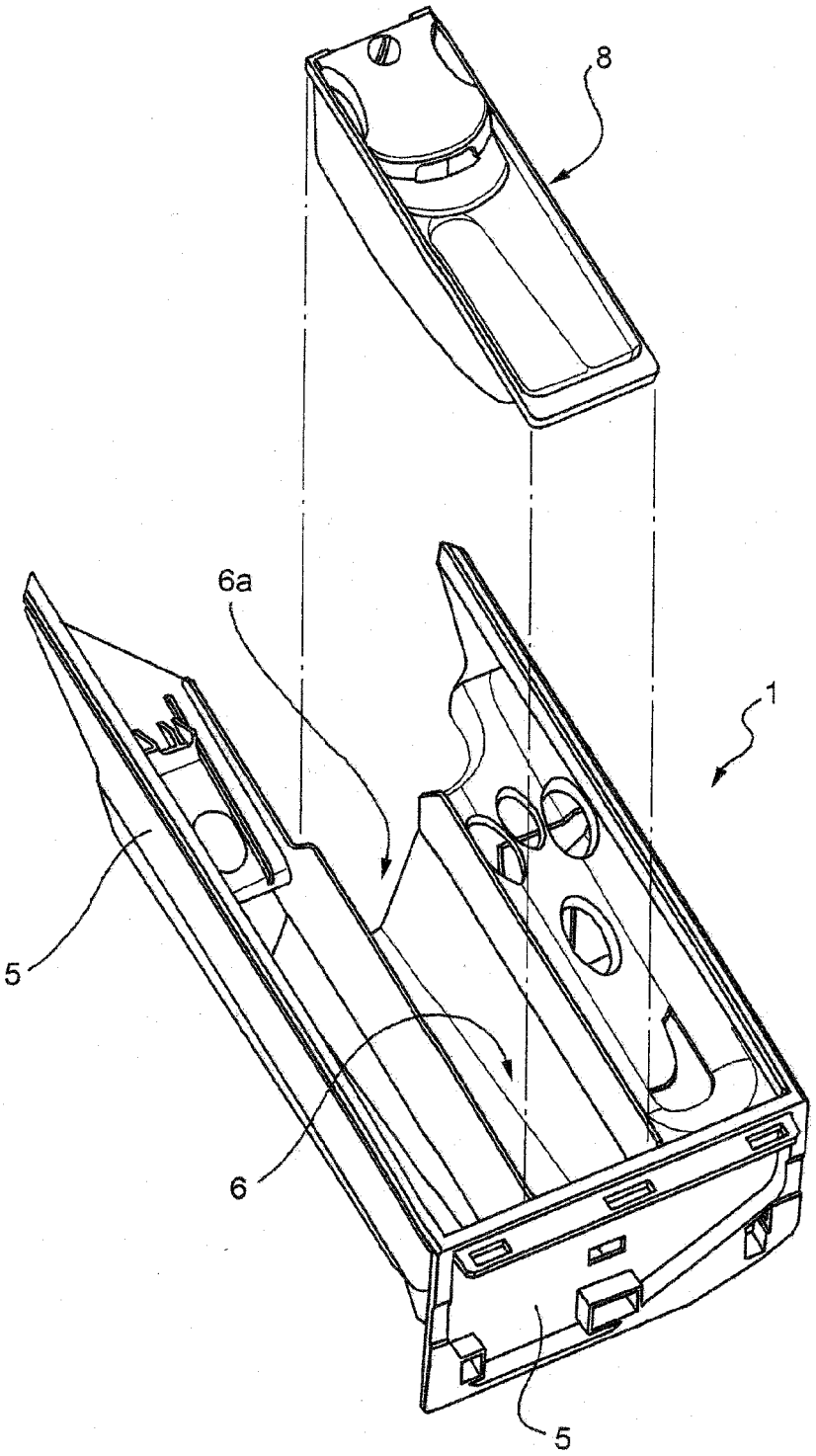


FIG. 3

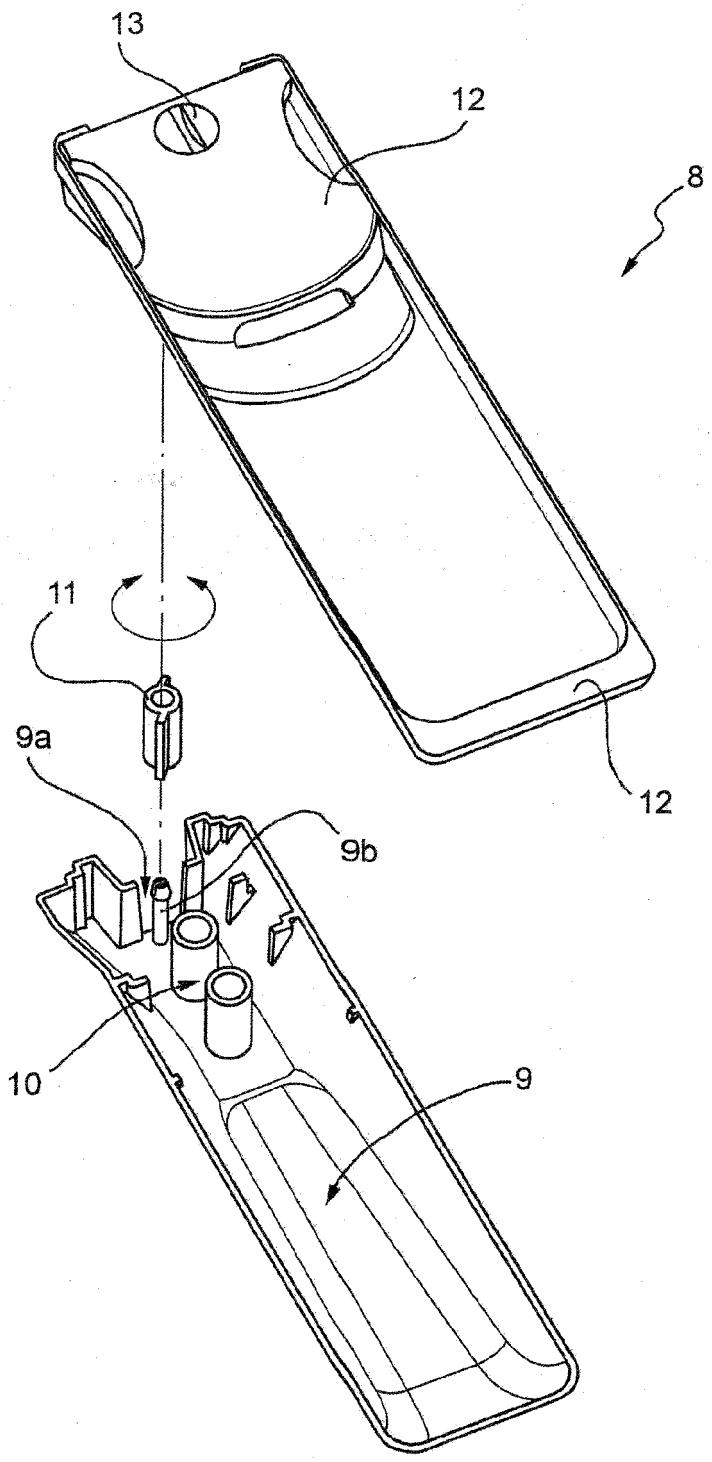
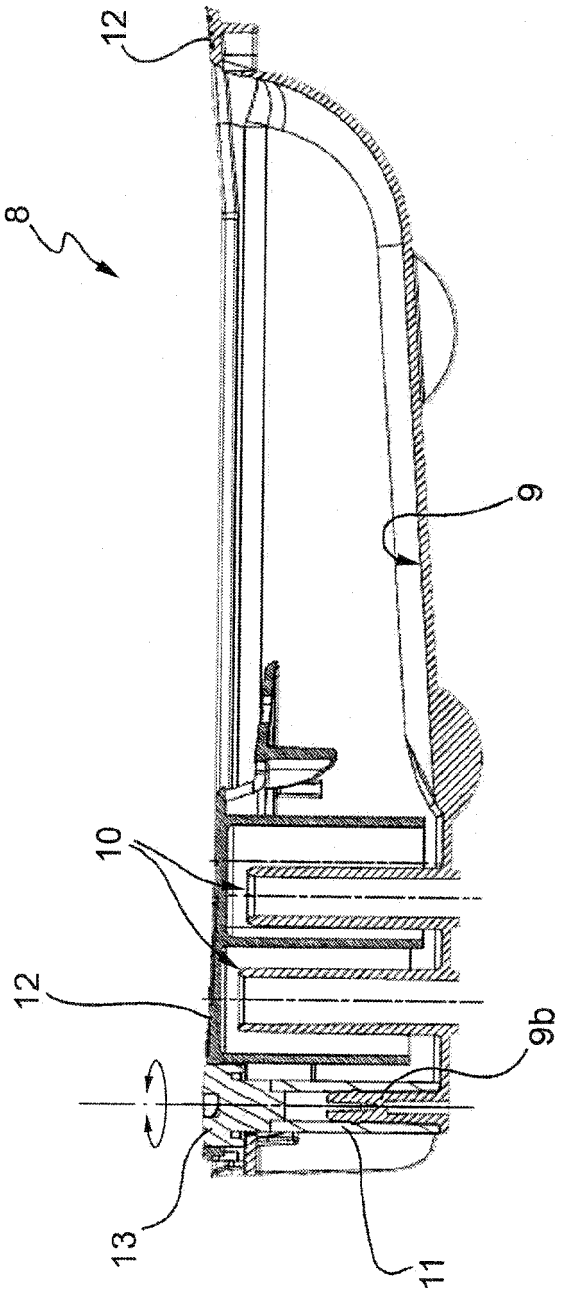


FIG. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 11 18 6339

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	* paragraphs [0001], [0011] - [0015]; claims 1-3,8; figures *	3-6	
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A	* paragraphs [0015] - [0020]; claims; figure 1 *	3-6	
A	CN 1 715 521 A (LG ELECTRONICS TIANJIN [CN]) 4 January 2006 (2006-01-04) * the whole document *	1-8	
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TECHNICAL FIELDS SEARCHED (IPC)

D06F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	9 January 2012	Clivio, Eugenio

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 18 6339

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82